

## A New Species of *Pedicularis* (Scrophulariaceae) from Spiti Valley, Himachal Pradesh, India

Tariq HUSAIN and Arti GARG

Taxonomy and Herbarium Division, National Botanical Research Institute,  
Rana Pratap Marg, Lucknow-226001, Uttar Pradesh, INDIA  
E-mail address: hustar 2000@yahoo.co.uk

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A new species of *Pedicularis*, *P. pushpagadanii* Husain & Garg, from Spiti valley of Himachal Pradesh, India is described and illustrated.

**Key words:** India, *Pedicularis*, Scrophulariaceae, Spiti valley.

On a recent survey and field collection trip to the Lahaul and Spiti valley of Himachal Pradesh a specimen of *Pedicularis* was collected from Lossar in Spiti valley at an altitude of 4000 m which could not be identified. When given a closer look to all the available herbarium specimens and also consulting literature (Prain 1889, 1890,

Pennell 1943, Tsoong 1955) on *Pedicularis* it was confirmed that this species was never described previously.

The new species *Pedicularis pushpagadanii* belonging to division Longirostres, section Siphonanthae which has corolla tube usually much elongated. The filaments are inserted between the middle and top of the

Table 1. Comparison between *Pedicularis pushpagadanii* and *P. rhinanthoides* in habit and floral organs

Character	<i>P. pushpagadanii</i>	<i>P. rhinanthoides</i>
Habit	erect herbs, 30–60 cm tall	erect, suberect or ascending herbs, 5–30 cm tall
Flower size	5–5.5 cm long	3–3.5 cm long
Pedice length	18–20 mm long	8–10 mm long
Galea shape	slightly inclined forward, straight for some distance then sharply bent from the middle of anther bearing inflated region, then sharply bent again at the base of the beak	sickle-shaped, continuous with the tube throughout till the beak, inflated in the anther bearing region
Beak shape	gradually narrowing for some distance then abruptly slender throughout till the end; tip attenuate, distant from lower lip	gradually tapering from the hood; tip generally bifid, toothed, appressed against the lower lip
Labium mid-lobe	acute at apex	roundish at apex
Calyx size	15–16 mm long	up to 12 mm long
Stamen insertion	stamens inserted all at different levels in the upper half of the corolla tube	stamens inserted at the same level in the upper half of the corolla tube
Anther	3.5 mm long, tailed at base	2.2 mm long, acute at base

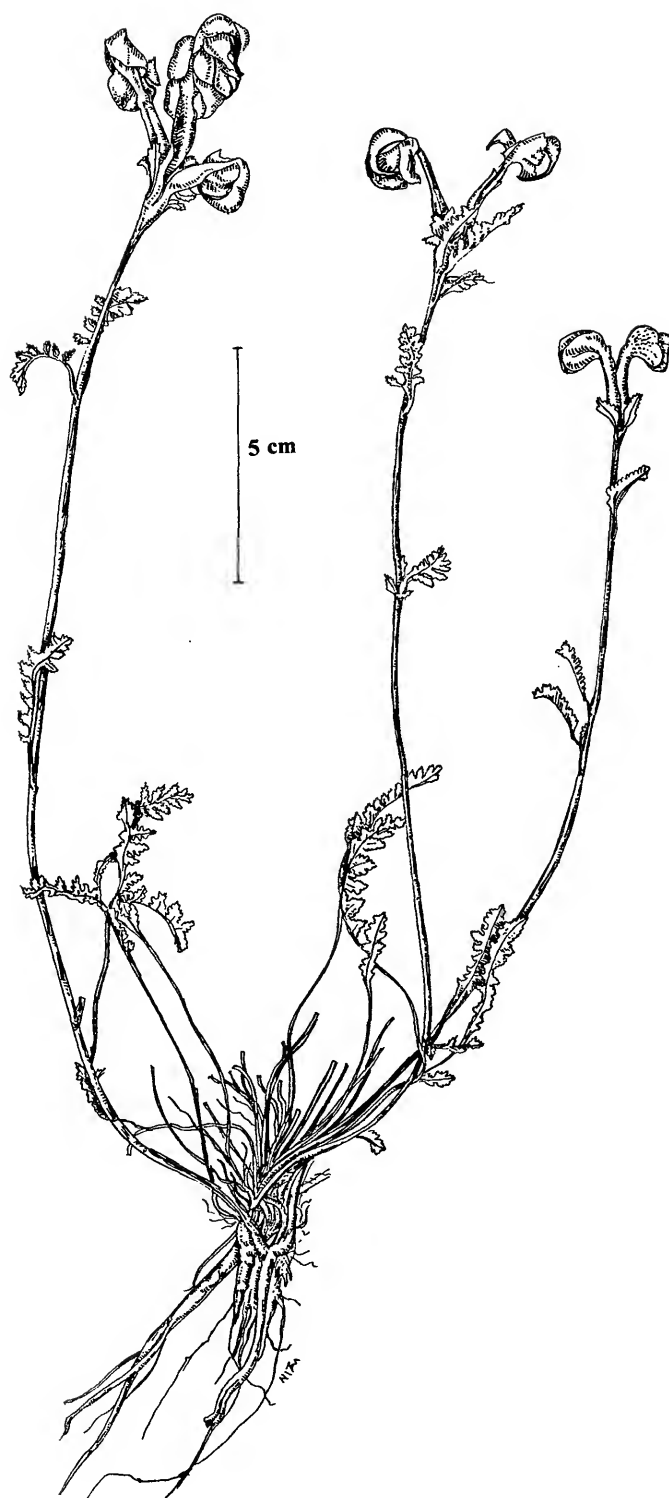


Fig. 1. *Pedicularis pushpangadanii* Husain & Garg (T. Husain 222166).

tube just below the apex. The beak in bud circinnate, with dorsal aspect apposed to median line of lip and apex directed to throat of corolla. Further critical comparison suggested that this new species is closely allied to *Pedicularis rhinanthoides*.

***Pedicularis pushpangadanii* Husain & Garg, sp. nov.** [Figs. 1, 2]

*Pedicularis rhinanthoides* Schrenk arte affinis, sed herbis elatioribus, ca 60 cm; floribus 5–5.5 cm longis; pedicellis 18–20 mm longis; galeis plus minusve prorsum inclinatibus, prime rectis inde flexis ab medianis partium antheriferarum inflatarum et in basi rostrarum; rostris prime gradatim contractis inde abrupte omnino gracilibus, apice attenuatis, ab labia inferas remotis; midlobis labiorum apice acutis; calycibus 15–16 mm longis; staminibus ad planas diversa in dimidia supra tuborum corollarum omnino insertis; antheris ca 3.5 mm longis, basaliter caudatis differt.

Erect herbs 30–60 cm tall; stem branched from the base, glabrous throughout, slightly puberulent along the rachis, cylindrical. Leaves both radical and cauline, pinnatipartite, unipinnate-dentate, tooth sharply pointed; pinnae 8–9 × 4 mm, those of lower half of lamina upto 1 cm distant, alternate, and of the upper half closely set, opposite, glabrous, ovate in outline; radical leaves many, long petioled; petiole 3–8 cm long, glabrous; lamina 4–10 × 1–1.3 cm; pinnae 10–19 pairs; cauline leaves very few, shorter petioled, generally 3–4 on each stem, alternate; petiole 1–2.5 cm long, almost glabrous; lamina 2–5 × 0.8–1.3 cm; pinnae 7–10 pairs. Inflorescence terminal 3–9 flowered lax racemes, glabrous. Flowers whitish-purple, up to 5 cm long, bracteolate, long pedicelled; pedicel upto 2 cm long, sparsely hairy; bracts 3 × 1.5–2 cm, foliaceous, petiolate; petiole narrowly winged, 8 mm long, sparsely hairy; pinnae 8 pairs, toothed with sharp pointed tooth, ovate in outline, closely

packed, glabrous; corolla generally white but appears purplish due to densely packed purple streaks on the labium, gland dotted throughout; tube 24–27 mm long, whitish-purple, slender, very sparsely pubescent outside, dense rows of hairs present at the apex, one and half to two times the length of the calyx; galea beaked with long incurved beak, slightly inclined forward, straight for some distance then sharply bent from the middle of anther bearing inflated region, then sharply bent again at the base of the beak, verrucose basally along the edges upto half distance, dentate on base with one tooth on each edge, strongly nerved, gland dotted throughout in dense rows when seen in fresh flowers, lower half of the galea white upto 8 mm distance; beak purple, sharply incurved gradually tapering from base to about 4 mm distance, then slender upto the tip ca 10–12 mm long tip attenuate, glabrous throughout;

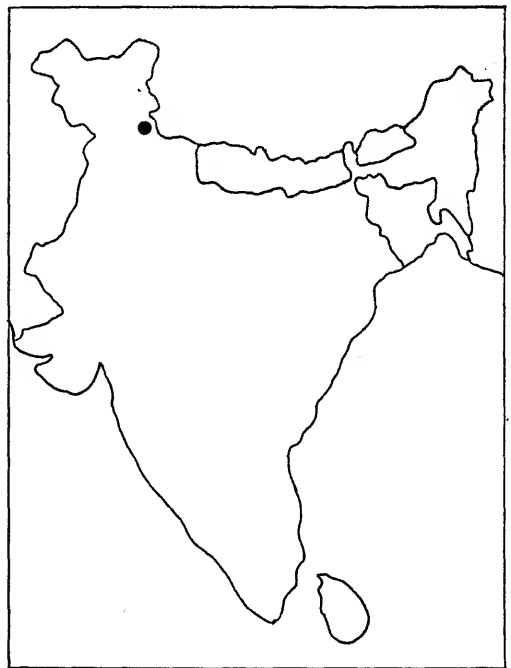


Fig. 2. Distribution of *Pedicularis pushpangadanii* Husain & Garg.

labium 16–17 mm long, spreading up to 22 mm across, 3-lobed, median  $5 \times 8$  mm, half narrower than lateral ones, slightly projecting with almost flattened top. Lateral lobes  $10\text{--}11 \times 12\text{--}13$  mm, rounded; margin eciliate, cilia present in the inter-lobular area; densely gland dotted throughout. Calyx  $15\text{--}16 \times 7$  mm, deeply cleft on one side upto near the base, surface coriaceous, hairy, margin aciliate, pitcher shaped, 5-lobed; hairs long multicellular, dense at the base sparse above, absent in the region of lobes; lobes upto 3 mm long, generally equal, shaped like a birds claw having very sharp long pointed teeth, strongly nerved. Stamens inserted in the upper part of the tube, all 4 stamens in-

serted at different levels, uppermost beginning from slightly below the neck of the galea, each stamen inserted 1–2 mm below the other, lowermost inserted at a point opposite to the top of ovary; anthers 3.5 mm long with tailed base; filaments of different sizes uppermost 8 mm long, lowermost 14 mm long, the other 10–12 mm long respectively, anterior pair hairy for some distance of ca. 2–3 mm in the upper part slightly below the top; stigma globose; style upto 35 mm long, glabrous. Ovary 5 mm long, lanceolate, surface smooth shining.

Typus: INDIA; Himachal Pradesh, Spiti, Lossar, alt. 4000 m, 4 Aug. 2002, Husain 222166 (holo: LWG; iso: LWG).

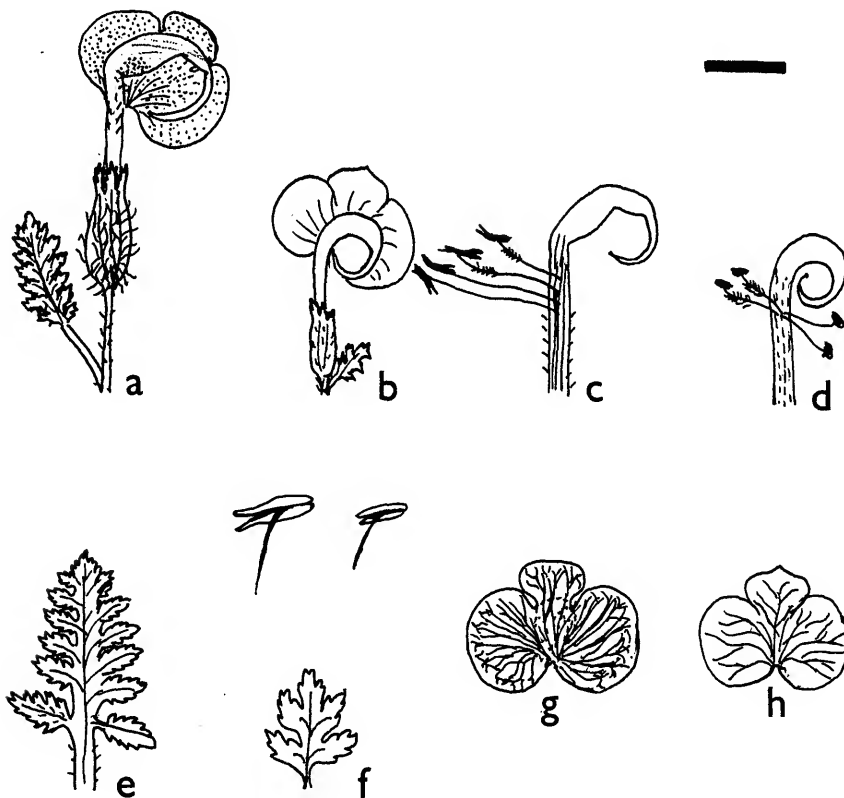


Fig. 3. Flowers and leaves of *Pedicularis pushpangadanii* Husain & Garg (a, c, e, g, i) and *P. rhinanthoides* Schrenk (b, d, f, h, j). a, b: flowers in lateral view. c, d: stamen insertion on the corolla tube. e, f: bracts. g, h: labia. i, j: anthers. Scale=1 cm for a–d, g, h; 5 mm for e, f; 4 mm for i, j.

Fl. & Fr.: July–Sept.

Distribution: Lossar; Spiti valley, Himachal Pradesh, India.

Ecology: Abundantly growing along water stream in moist places in one patch, in association with *Pedicularis bicornuta* Kl. ex Kl. & Garcke and other grasses; at alt. 4000 m.

Notes: On enquiry from the local dwellers of Lossar in Spiti Valley, it was learnt that this species along with *Pedicularis bicornuta* was the most commonly growing species of the area.

The authors feel highly honored to provide the name of the specific epithet of this new species after Dr. P. Pushpangadan, an eminent Scientist who was recently honored

with the UN-equator initiative award, and is presently Director, National Botanical Research Institute, Lucknow. We thank DST, New Delhi for financial assistance under SERC scheme.

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T. フセイン, A. ガルグ: インド, ヒマチャル・プラデシュ州スピティ渓谷産シオガマギク属 (ゴマノハグサ科) の1新種

インド, ヒマチャル・プラデシュ州スピティ渓谷から, シオガマギク属 (ゴマノハグサ科) の1新種, *Pedicularis pushpangadanii* Husain & Garg を記載した. *P. pushpangadanii* は, パキスタンから中国西南部にかけて広く分布する *P. rhinanthoides* Schrenk に似ているが, 高さ30–60 cm とより

大型で, 花は長さ5–5.5 cm, 花梗は長さ18–20 mm, 葯の末端が尾状に伸長する点などで異なる.

*P. pushpangadanii* は標高4000 m の水流に沿った湿った場所に, 同属の *P. bicornuta* Klotzsch ex Klotzsch & Garcke と共に生育していた.

(インド・国立植物学研究所)